

BAUMRUCKER HEADS NEXT VOLUME OF THE ENGINEERING NEWS

A. C. Dieffenbach, I. W. Litchfield, And S. C. Prescott
Speak at Banquet

ANNOUNCE NEW BOARD

Associate Board and Staff Are
Also Announced At
Dinner

William Baumrucker, Jr. '29, will head the Tech Engineering News for the coming year, it was announced last night at the annual formal banquet of the publication for its staff and management, held in the Hotel Lenox in Boston. At this time the entire personnel of the monthly for the coming year was also announced.

Three speakers addressed the banquet. Dr. Albert C. Dieffenbach, editor of the Christian Science Register, delivered the main address of the evening, speaking on editorial work as applied to magazines. Isaac W. Litchfield '85, one-time editor of the Technology Review, and a favorite speaker at T. E. N. affairs, and Dr. Samuel C. Prescott '94, president of the Technology Alumni Association also spoke.

Baumrucker comes from River Forest, Illinois, and is enrolled in Course IV-A. He played on the Sophomore football team and is a member of two honorary societies, Scroll and Mortar and Ball, the Coast Artillery society.

The newly-elected Managing Board, Associate Board and Staff of Volume IX of T. E. N. as made known at the banquet are as follows:

General Manager, William Baumrucker, Jr. '29; Editor, Adam K. Striker, Jr. '29; Business Manager, Thomas H. Speller '29; Advertising Manager, A. Allan Home '30; Circulation Manager, Charles C. Ladd '30; Associate Editor, Howard S. Gardner, Jr. '30; Managing Editor, B. King Couper '29; Publication Manager, Charles F. Edlund '30.

The Associate Board consists of Assistant Editor Mahlon R. Boyer '29; News Editor, Howard A. Robinson '30; and Assistant Business Manager, Anthony R. Savina '30.

The staff is made up of J. P. Boggs '30, J. W. Cook, Jr. '31, J. P. Dahlberg '31, J. H. Dodge, Jr. '31, N. D. Fitzgerald '31, C. E. Grosser '31, N. B. Haskell '31, A. H. Kuynel '31, G. M. Orme '31, C. W. Rankin '31, H. E. Raymond '31, P. C. Smyth '31, J. A. Speedie '31 and C. R. Wood '31.

TECHNIQUE STARTS SALES CAMPAIGN

Signups Will Cost \$1 and Be
Redeemed For \$3, Making
Total Cost \$4

Starting on Registration Day, February 6, Technique, the Institute's yearbook, will hold its signup campaign for this year's edition. The campaign will continue until noon on February 11. As in previous years, there will be a stand in the Main Lobby daily from 9 o'clock until 5 where students may purchase their signups, and the yearbook will also send out several free lances to canvass in other parts of the buildings.

These signups will cost \$1, and are a sort of option on a book, since they are worthless unless the remainder of the purchase price is paid during the rederivation campaign. The latter will be held the last week in March at the price of \$3, making the total cost of the book \$4 as usual. Only enough books will be printed to take care of the signups. Signups will also be sold for a short time after the campaign has ended, but these will cost \$2.

Save \$5—Get In Your Registration Material

According to the regulations for registering for next term, registration material must have been deposited in Room 3-106 by 1 o'clock today; failure is punishable by a fine of \$5. Fool "Uncle Horace" and save five bucks—get the material in on time.

Will Lead Destinies
Of T.E.N. in 1928-29



William Baumrucker, Jr., '29

CHEMISTS MEET IN WATER SYMPOSIUM

American Chemical Society To
Hold Open Meeting
Tomorrow

Water, its properties and uses, will be discussed tomorrow afternoon and evening at the Institute in two sessions of a symposium on "The Importance of Water in Modern Life, Its Source and Its Domestic and Industrial Use." This will be held in room 5-330 under the auspices of the Northeastern Section of the American Chemical Society.

Three 25-minute speeches will be given in the afternoon session, beginning at 3 o'clock. Mr. W. D. Dollins, chemist with the United States Geologic Survey, will speak on "Natural Water Supplies. " "The Preparation of Water for Domestic Use," will be discussed by Dr. Robert S. Weston, Boston consultant; and Mr. H. J. Skinner of Skinner, Sherman and Esselen, Boston, will tell about the treatment of water intended for industrial use. Dinner will be served at the Riverbank Court Hotel at 5:30, and from 6:45 to 7:45 movies of chemical industries will be shown.

The evening session opens at 8 o'clock, when Dr. Samuel C. Prescott, head of the Technology department of Biology and Public Health, will speak on "Water as a Carrier of Disease." Mr. W. F. Uhl, hydraulic engineer with Chas. T. Main and Co., of Boston, will talk on "Water as a Source of Power, and Mr. Frank T. Winsor of the Metropolitan District Water Supply Commission of Boston will outline the "Future Water Supply of Boston." Like all meetings of the A. C. S., this symposium will be open to all interested.

Second Concert of Whiting's Series Will Be Given Next Tuesday Evening

Program Consists of Classic
And Modern Chamber Music
By Four Composers

Mr. Arthur Whiting's second concert of the school year has been announced as a pianoforte program of classical and modern chamber music, scheduled to be given in Room 10-250 this Tuesday evening at 8:15 o'clock.

Contrary to his usual custom, Mr. Whiting will not be accompanied by his group of assisting artists. He will, however, give a brief explanation of each selection before playing it, thus giving the audience an opportunity to get a better understanding and appreciation of the music.

These concerts are sponsored by the Corporation with the idea of helping to broaden the technical education given at the Institute. Though open to the faculty and Corporation, they are primarily for the students. How-

NAVIGATION TO BE SUBJECT OF NEXT SCIENCE LECTURE

Professor George L. Hosmer
Will Give Same Talk
Three Times

ADMISSION IS BY TICKET

To Compare Modern Methods
Of Navigation With Those
Of Columbus

Speaking on modern methods of navigation, Professor George L. Hosmer, Professor of Geodesy at Technology, will deliver the second of a series of four popular science lectures this afternoon at 4 o'clock in Room 10-250, before an audience of preparatory and high school students.

Professor Hosmer, who is considered an outstanding authority on this subject, will speak on, "The Art of Navigation as Affected by Modern Inventions." He will discuss the methods of navigation in the days of Columbus as compared with those in use today, and will speak of the effect of such modern developments as the radio, the gyro compass and aviation upon navigation. The lecture will be illustrated with an exhibit of many instruments and the use of numerous slides.

This lecture will be given this afternoon, and tomorrow at 2:30, primarily for students from preparatory and

(Continued on page 4)

Favors Freshmen
Living in Dorms
And Fraternities

Interfraternity Basketball and
Bowling Will Start Soon
After Mid-years

That it favored that all freshmen live either in the dormitories or in the fraternity houses was the unanimous decision of the Inter-fraternity Conference at its last session on Tuesday evening. Before reaching this decision, the matter was brought before the members of each individual house, and their representatives voiced their opinion at the Council. Thus this represents the feelings of about 700 of the most active men in the student body with regard to the problems presented by the erection of the new dormitories.

Following the usual custom of the fraternities, intra-mural sports will be started as soon as possible after the commencement of the second term. Nearly every house will be represented this year by a basketball team, giving promise of some lively competition. Interfraternity bowling, too, will be organized at the same time. Though it has never been as popular as basketball among the "Greeks" at Technology, over half of the houses will send out teams.

ever the showing at them has been comparatively poor recently, and it has been stated that there is a possibility of their being discontinued unless the audiences show by a satisfactory increase that there is a real demand for them.

This time the program will consist of music by four of the best known European composers, Bach, Brahms, Debussy and Chopin. In all there will be fifteen selections which have been chosen as best suitable for easy appreciation by those who have not had the opportunity for an intensive study of music.

Five other American universities, recognizing the merits of these concerts, are offering them for the benefit of their students in the same way as is being done at Technology. They are Yale, Princeton, Harvard, Hamilton and Wesleyan. February 14 will be the date of the third of this year's series of concerts at the Institute.

Be Sure To Getch
Yer Monday's Tech

Look for the GREATER TECHNOLOGY issue of THE TECH on Monday. One of the feature articles of the issue will be a brief history of Technology, from its original few rooms in the Mercantile Library Building at 16 Summer street up through the erection of the Institute's newest additions, written by Dr. Harry W. Tyler '84, head of the Department of Mathematics.

Why the Beaver was chosen for the official mascot of the Institute in lieu of the pterodactyl or the ever industrious ant will be divulged. Special sports' stories have been prepared by "Doc" McCarthy and "Os" Hedlund on their respective sports. And last but not least we must not forget the review of Professor L. Magruder Passano's latest play included in a story describing the three foot shelf of diversified writings which have flowed from the pen of the mathematics professor.

LT. HEGENBERGER TALKS TO FROSH

Tells About Flight to Hawaii
At First Smoker of
Class of '31

Lieutenant Albert F. Hegenberger '17 recounted the story of his successful flight to Honolulu to a crowd of over 300 freshmen at the Freshman Smoker in Walker Memorial Main Hall on Wednesday night. After being introduced by Dr. Samuel W. Stratton, Lieutenant Hegenberger started his talk by giving a brief history of aeronautics, ending by the description of the preparations for and actual flight to Honolulu.

Promptly at eight o'clock the program started with a few selections by the recently organized R. O. T. C. Band. At the end of its concert, Robert B. Freeman, president of the Class of 1931, clambered upon the platform and introduced the officers of the freshman class. He then gave a short speech, stating that this was the first of a series of such get-togethers which the class would hold during the year. At the conclusion of the talk, he introduced Dr. Samuel W. Stratton to the audience.

Dr. Stratton told the students of the importance of Lieutenant Hegenberger's flight to the Hawaiian Islands, and of the pride that the Institute felt towards Hegenberger. He said that the Institute was trying to get the aviator to come to the school and help build up the course in aeronautics by furthering interest in aviation. After a few more words he introduced Lieutenant Hegenberger.

Lieutenant Hegenberger told the students of the freshman class the story of his successful flight to Honolulu. The first airplanes were very frail and could only be flown in the best of weather. As the years passed by, the airplane developed. Soon it was strong enough to go on long-distance flights. Until a few years ago airplanes were built only for short hops, but it was discovered that by adding enough gas.

(Continued on Page 4)

WAR COLLEGE HEARS STRATTON LECTURE

"Creative Spirit in the Navy"
President's Subject

As a specially invited guest of the Naval War College at Newport, R. I., President Samuel W. Stratton will lecture to the student body there on "The Creative Spirit in the Navy." In his address, he will show how the scientific research, stimulated by the continual need for further improvements and developments in our naval defense equipment, is of practical value to many fields outside that of war, and especially the merchant marine.

The Naval War College is a government institution where men who have already been graduated from a regular naval college, such as Annapolis, and who have possibly had some experience in the service, are permitted to come to study and discuss special technical problems. In this way it is a school somewhat parallel to the Department of Naval Architecture and Marine Engineering at Technology, where there are quite a few men in a similar position.

YALE FIVE TAKES BASKETBALL GAME IN FINAL MINUTES

Cardinal and Gray Holds Lead
For Three Quarters of
Fast Contest

WESLEYAN TOMORROW

Hold Victory Over Brown, But
Have Also Lost to Elis
Close Score

Entering the last thirty seconds of a super-thriller of a basketball game with a one-point lead to overcome, the Cardinal and Gray quintet was unable to nose out the Yale five at New Haven last Wednesday night by the score of 28-25, and allowed the Blue to sink another goal and clinch the game. The battle was all in Technology's favor until the last nine minutes of play, and it was not until this time that Yale went into the lead. McCarthy's protégés were loud in their praise of the Blue basketeers, and declared they were the superior of any team met so far this year.

The game opened with Technology jumping into the lead, and the Yale forwards were held scoreless for the first eleven minutes. In this time the score had increased to eight to nothing, and things looked mighty rosy for the Cardinal and Gray. Lawson and Brockelman invaded the forward court time and again to take a pass from Allen or Reynders, who were occupying the attention of Yale's defense, and it seemed as if a new scoring combination had been uncovered. When the Blue finally found the range, it was Merrill and Fodder who did the greater part of the scoring, these two each contributing ten of the team's twenty-eight points. The much-heralded Nassau, individual scorer in the Eastern Intercollegiate League, was held to one basket during the entire game by Captain Norm Estes.

The first half was a fast one, but the second far exceeded it for rapidity of action. Technology led at half-time by the score of 13-8, and five-hundred Yale fans blinked in amazement at what they expected to be the wreck of their championship team. Yale leads the Eastern Intercollegiate League at present, and holds a victory over Dartmouth among its accomplishments. To conceive of one of Dartmouth's victims handing the Blue a pasting was almost too much for the sons of Eli.

Yale dragged behind for more than

(Continued on Page 3)

AUTOMOBILE ISSUE COMES OUT MONDAY

January T. E. N. Describes
Changes and Improvements
In 1928 Models

Automobiles, and the latest improvements in their design and manufacture, will be the feature of the January issue of the Tech Engineering News which will be placed on sale Monday and Tuesday.

"Automotive Developments for 1928," by Adam K. Striker '29, is the leading article of the issue and is accompanied by a two page pictorial section showing the details of the more interesting changes in the 1928 field. The article is a technical discussion of the principle changes in the 1928 automobiles.

It points out the great number of important developments of a technical nature which the past year has witnessed in the automotive industry, and the author goes on to analyze the changes made in the new Ford, Chevrolet, Dodge, Pontiac, Cadillac, La Salle, Hupmobile, and Marmon. All improvements up to and including the New York Automobile Show are included in this discussion.

In his conclusion, the author finds that the new motors are characterized in the main by higher compression ratios and scientifically designed cylinder heads. He points out that the industry is tending more and more towards research as opposed to empiricism, and further remarks that all these advances have greatly increased the usefulness of the automobile without increasing its cost.

"Television," by Phillip C. Jones '22, is a detailed exposition of the

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Telephone Univ. 7029
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Printer's Telephone—MAN cock 8387
SUBSCRIPTION PRICE: \$2.50 PER YEAR
Published every Monday, Wednesday and
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except during college vacations
Entered as Second Class Matter at the
Boston Post Office
Member Eastern Intercollegiate
Newspaper Association

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OUR IMMOBILE COLLEGIATE SYSTEM

THE easiest way to discover what is wrong with our American educational system is to pick up almost any magazine and some article by an aspiring Menckenite or reformer on education is almost sure to be found. In general their accusations are so vague that it is quite refreshing to find one that is specific whether we agree with him or not.

An English student who has studied both in England and America some time ago wrote an article comparing the systems of both countries which interested us because of its conciseness. His contention was that in America one goes to a university to distinguish one's self while in England the aim is to develop one's self. The American collegian hopes to distinguish himself by achieving an athletic prowess, making the school paper or some other activity, or by election into some club or fraternity. In the intellectual field he pursues applied science or other practical and vocational studies for the most part, thereby putting aids to the achievement of future distinction ahead of the development of thinking power. It all boils down to the question of whether we are too practical.

We admit that our education is extremely practical, but even if we consider this an evil, we do not think it can be remedied in the colleges or universities. It is a reflection of our whole national attitude and our university system can never deviate greatly from the national ideals except in a few isolated cases. This is especially true in a country with as large a collegiate system as ours where the various colleges must cater to the popular tastes in order to obtain enough students. If we wish to make our colleges less of a practical nature, therefore, either they must be cut down in number so that only those students who seek development rather than materialistic achievement will find room, or else the national ideals must be changed. The former alternative is almost impossible and the latter would require many years to achieve to an appreciable extent.

The idealists will say that the function of education in part is to mold and direct public opinion but that theory does not work out in practice when it is applied to new ideas, for our elementary schools are run by the government and our schools of higher education are supported by the moneyed leaders, both of which hold the prevailing ideas of the times. For that reason little can be done to change the collegiate system even if it is far from perfect.

WHAT WOULD YOU DO?

WHAT would you do if someone were to suddenly give you five million dollars? To many this may seem like a foolish question, but after all there is more to it than would first appear. If the actual necessity of earning one's living by either physical or mental effort were suddenly removed, would life hold a great charm for the youth of today?

We suppose that an offhand answer to the question would be "yes," and yet, we wonder if one would give the same answer after more carefully considering the matter. We will go further and say that we believe a serious consideration of the question would result in "no" for an answer.

If the man in the street were asked why he was working, he would probably say that it was the only way he could earn a living for himself and his family. If the millionaire were asked why he continues to work he would either say that he dared not stop or else that he worked for the love of working.

Where, then, does money and the possession of money enter into the scheme of things? Is it to be considered as a means to an end, or does it come merely as a result of attainment in some other field?

If the necessity of earning one's daily bread and butter is suddenly removed, does life still have the same importance? For a year or two, perhaps, and yet after a time the problem of doing nothing but amusing one's self is apt to grow rather palling. Working for a living then, seems to be a definite part of life's happiness.

It seems to us that we of Technology are more fortunate than many others, for we shall be doing a work which to ourselves is at once remunerative and interesting. If many of us were given these five million dollars we would expend a large part of it in doing research work. But here again, one runs up against a snag for the results of research are more often than not highly profitable. The whole thing seems to go around in a circle—but think it over, what would you do?

THE TECH BOOK LIST

FEMALE CROOKS

"Ladies of the underworld," by Netley Lucas. J. H. Sears & Co. New York. 310 pages. Price \$2.50.

In his bizar-covered volume Netley Lucas attempts to depict all of the outstanding types of female criminals the world over. The book has no continuity of thought other than the fact that all of the characters are females and all of them live lives of crime. The chapters, of which there are twenty-six, deal with separate aspects of female crookdom, describing the characteristics of such women and the conditions under which they work.

A great deal of time is of course spent in describing the female crooks which operate in the big cities such as New York, Paris, London, Berlin, Chicago, and San Francisco. They range in degree all the way from the petty "shop-lifter" to the murderer and the jewel decked beauty who swindles during the day and blackmails at night. The book is admirable in the respect that it presents what appears to be fact without any show of emotion or sentiment. It merely seems to be the idea of the author to say to his readers, here are the facts—interpret them as you will.

In introducing the volume Lucas says, "Man is, in the main, a law-abiding creature with respect for authority and regard for tradition, but woman is a born revolutionary and has in her heart but little respect for man-made laws; thus when she really does burn her boats behind her and cross the Rubicon between honesty and dishonesty the result is apt to be exciting, if nothing worse, for those connected with her." And with that statement he starts his story and at times the result is quite exciting even to the reader.

Netley Lucas is a young English criminologist and his engagement to "Chicago May" Churchill was recently announced. His bride-to-be is said to have a police record which in the past thirty-five years has included charges of blackmail, robbery, and attempted murder. Lucas claims, however, that Miss Churchill is a very charming woman so it would seem that the author was taking his profession quite seriously.

G. I. C.

MENCKEN EXPRESSES IDEAS ON COLLEGES

"I am thoroughly convinced that too many young Americans are now going to college and that their presence is greatly impeding the work of the colleges. Certainly it should be possible to devise some scheme to weed out the unfit." Thus spoke Henry L. Mencken to a reporter for the Cornell Sun, in one of several interviews recently granted to college papers.

Mr. Mencken, we are told, "is opposed to the college for the purposes of intellectual education. With Nathan he holds that its greatest benefits are social."

Of compulsory military training, the editor of the Mercury said:

"The military training idea seems to me absurd. I see no reason why the college student should be conscripted and not the young man outside."

And of the lecture system:

"The American system, it seems to me, is better for Americans than the Oxford system. It is obviously more in accord with the habits of mind of our people."

And of fraternities:

"Regarding fraternities, I know nothing. It is commonly alleged that they foster snobbery. But I see no objection to snobbery per se; all rational men are snobs in some way or another. That the fraternities exalt fifth-raters and overlook men of merit may be true, but the accusation might be leveled against any other human institution."

Mr. Mencken urges all who feel the urge to write, first, to obtain steady employment. Until recently he suggested bootlegging, but the strength of competition has led to advocacy of taxi driving and similar occupations.

"The New Student."

Although not planned to affect fraternity and sorority houses in particular, the revised insurance rates made recently by the New York Fire Insurance Rating has increased insurance rates on fraternity and sorority houses about 50 per cent, on an average.

The increase comes through interpretation of a clause concerning the number of families represented in a house. Since the fraternity houses and their sister sorority houses usually have about as many families represented as there are residents, the interpretation lays a heavy load on them.

With The American College Editors

The following editorial is taken from the columns of the Michigan Daily for January 7, 1928.

DO WE STUDY?

"A recent survey conducted at the University of Minnesota among more than 1,000 women students indicates, according to the surveyors, that the students investigated do not know how to study. There is nothing in the nature of a sensational revelation in this—quite the contrary—for without a doubt a similar survey of our own campus would show only similar results.

"It is a curious thing that University students, having for their business the acquisition of facts and knowledge, should employ such woefully inefficient methods as they do to such a large degree in acquiring knowledge. It is curious that this business of studying has never been reduced to scientific precision by the acute minds which have preceded us; and it is anomalous as well as curious that men and women engaged in learned pursuits should have learned so little about the implements of their profession.

"Still, as we round the bend toward the close of the present semester, it is only too apparent that the great bulk of all studying is done by haphazard methods—students picking up crumbs here and there in the hope that the instructor will chance to pick on that particular bit of knowledge for an important question. Often this type of study is successful, often it is not; when fortunate the student considers himself worthy of the grade he receives; when unfortunate he laments the fact that it was a cruel fate which deprived him of his credit.

"To attempt to learn the facts of any course completely is as foolish as it is ambitious, for a large portion of any subject given is mere sawdust packing for the salient facts. Efficiency in studying would seem to require that the first step be a selection of these salient facts for study, and elimination of the unnecessary chaff which surrounds them. That, in itself, would constitute a tremendous step forward in the program of the average college student, and would constitute a tremendous saver of time during the hectic periods of final examinations.

"The training which enables a student to distinguish between these important and unimportant facts is, of course, quite another phase of education. It is to be admitted, without much controversy, that the average college student does not know how to study; and if it were not offhand, the evidence of the Minnesota investigation should prove conclusive. It is to be recognized, however, that with proper application of educational principles the difficulty of imperfect study can be overcome."

—The Michigan Daily.

The first women's college daily newspaper was established this fall at Radcliffe College when the Radcliffe paper was made a daily publication. The sheet is three columns, four to six pages in size, and the editor is Miss Evalyn M. Enz, '28. The publication is a member of the Intercollegiate Press.

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BEAVERS LEAD UNTIL FINAL MINUTES

Natators Will Pit Their Strength Against Worcester Tech Tomorrow

Hold Yale Team In Check Up to Last Few Plays, But Are Nosed Out By 28-25

(Continued from Page 1)
half of the second period before finally getting the lead, but once in front, the Blue was never more than three points ahead. McNulty and Nanny, the pick of the guards encountered by McCarthy's men this year, tightened up, and Yale did the greater part of the scoring during the second half. With half a minute to go, Yale had a one-point lead, and this was topped off with a field goal just before the final whistle. It was a hard game to lose, but Technology acquitted herself so well before the New Haven fans that a three-point defeat at the hands of the league-leaders was not too hard to swallow. The team returned from New Haven the same night, in time for Thursday classes.

Wesleyan will provide the opposition in the next game, which is scheduled for tomorrow evening at eight o'clock in the Hangar. The team is in good shape, with the exception of McClinton, and another fast game is in store. The vicious practice of losing games by a narrow margin will be ended, according to reports from the squad, although Wesleyan has a first-rate outfit. They hold a victory over Brown, but have been defeated by Yale. Previous to the varsity game the frosh will tackle Cambridge Latin. The last game before exams will be with Northeastern in the Hangar next Tuesday night.

The summary:

	M. I. T.	YALE	
	G	F	P
Reynders, rf	1	0	2
Allen, lf	1	0	4
Brockelman, c	3	2	8
Estes, c, rg	1	0	2
Lawson, lg	4	0	9
Bates, rf	0	0	0
Totals	11	3	25
Time, two 20-minute periods.	12	4	28

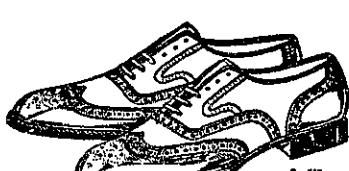
YEARLING MATMEN OPEN REGULAR MEETS

Tackle Freshman Outfit From College of Osteopathy

Coach Greene's frosh wrestling squad gets into action for the second time this fall when the youngsters meet the freshman outfit from the Massachusetts College of Osteopathy, Saturday night. At eight o'clock the teams will go into action in the Hangar. Although the Osteopaths always turn out a good crowd of matmen the Beaver frosh have a nice working team this year and ought to make a winning score.

Although this is the first scheduled

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L.T. HEGENBERGER TALKS TO FROSH

Very Careful Preparations Had To Be Made to Make Flight Safe

(Continued from Page 1)
oline and oil to the plane it would be able to travel long distances.

The Lieutenant reviewed some of the most important flights in the past and said that some were planned with cars while others were not. The Hawaiian flight was prepared with the utmost care. It was sponsored by the War Department and the United States Air Corps, and several years were spent in preparation for it.

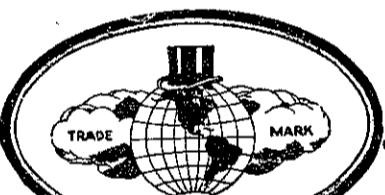
Preparations were started in 1919. The Pacific ocean has various prevailing winds which had to be carefully figured out and studied. The compass had to be corrected for the wind conditions and magnetic declination, which caused quite a change in the correct reading. In addition to this, certain flying instruments had to be perfected and made ready for the flight. It called for such a high degree of careful navigation that ordinary flying instruments were not reliable enough to be used.

For several years the United States Army developed these instruments, and when the time came to leave on the flight the plane contained the best set of instruments that could be made.

"The importance of an accurate compass was paramount," stated Lieutenant Hegenberger, "and its development was the most important single feature successfully contributed to long-distance flying.

"The Hawaiian Islands are the key to the whole Pacific ocean. It is up to the United States to hold them as the easiest means of defending our whole western coast. The airplane will contribute more to that defense than anything else. Nothing promotes peace better than getting together with the other fellow. The airplane will help bring the various nations together and thus promote better understanding."

At the conclusion of Lieutenant Hegenberger's speech, refreshments were served and "Obie" Denison entertained the students with several of his songs and piano selections. The evening ended with the customary singing of the Stein Song, played by the band.



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President Stratton Picks The Nine Wonders Of World

Finds It Impossible to Select Only Seven at Request Of Magazine

(Note: This article is reprinted, in part, from the February issue of the POPULAR SCIENCE MONTHLY, which is now on the news stands. The list was made out by President Stratton is given elsewhere on this page.)

The ancient world had seven wonders. All were architectural and artistic. You may still recall them—the Pyramids of Egypt and the Sphinx, the Hanging Gardens of Babylon, the Tomb of Mausolus in Asia Minor, the Temple of Diana at Ephesus, the Colossus of Rhodes, the Statue of Jupiter Olympus in the valley of Olympia and the Pharos (Lighthouse) of Alexandria. Marvels of many centuries, all were built by the slavery of drudgery with crude implements. Time has left but one—the Pyramids and the Sphinx.

The modern world has wonders far different, vastly more magnificent. They are achievements of applied science, created not by slavery, but by mastery of Nature's forces to the use of mankind. They are on every hand. So commonplace have many become that we have almost ceased to marvel. They have changed the whole course of life; yet never have they been tabulated as were the wonders of old.

"Time and again, Popular Science Monthly has been asked to list the Seven Wonders of the Modern World. Seeking an answer, the Editor invited several hundred leading Americans each to name seven examples of applied science which they considered the greatest. An analysis of their replies brought forth a list of some fifty works representing useful applications of discoveries in virtually every field of research."

But it was necessary to choose from these the seven most important. In an attempt to solve the problem of choosing the most important, it occurred to the editors of the magazine that President Samuel W. Stratton of the Institute might be of assistance. A man was sent to Dr. Stratton with the request to make up such a list of seven.

"Seven!" he exclaimed. "You mean I am to reduce the wonders of today to just seven? It can't be done! Why, it would be more reasonable to name seven hundred and seventy-seven wonders!"

He read down the list—agricultural machinery, airplanes, aluminum, anesthesia, antitoxins, automobiles, bridges—and so on to the end of the alphabet.

He took up a pencil and began to scratch off certain items. He threw down the pencil.

"It can't be done!" he repeated, and begged to be excused. Students were waiting outside his office; he would not delay them. Meanwhile he would consider the question."

Later the reporter returned and received from Dr. Stratton a list containing what he considered the nine wonders of the world. Yet, President Stratton was dissatisfied.

"It is the best I have been able to do, but far from perfect," he explained. "See"—he pointed—"I have failed entirely to mention chemistry; yet the application of chemistry lies at the heart of most of the wonders I have listed."

Indeed, it was a chemist, the son of a humble French tanner, who laid the foundation for the first great wonder, "the discovery of bacteria and the application of bacteriology to human welfare." By revealing the perpetual onslaught of these myriad microscopic creatures on all living matter, Louis Pasteur first led the world from black ignorance and superstition to scientific understanding of disease. And by application of his discoveries to the relief of human suffering, he armed mankind against its subtlest enemies. As a result, infections and plagues have been banished and conquered, until today the people of the world enjoy better health and longer life than ever before in history.

It was less than seventy years ago that Pasteur, searching a brewery for the cause of "diseases" that spoiled wine and beer, discovered that fermentation is not "spontaneous," but the work of tiny one-celled creatures. He revealed that the atmosphere swarms with these invisible beings, which we have learned to call germs or bacteria, in countless varieties, ready to invade and prey upon every form of organic substance, whether it be the juice of a grape or the blood of man. He went on to discover bacteria that caused certain diseases in animals, and men, and to learn to control and banish them.

Again, researches in chemistry and in physics laid the cornerstone for the second great wonder Doctor Stratton named—"the progress of our knowledge of the constitution of matter and

The Nine Wonders of The Modern World

A List by Dr. Samuel W. Stratton
The discovery of bacteria and the application of bacteriology to human welfare.

The progress of our knowledge of the constitution of matter and radiation phenomena.

The progress of electricity as to light, power and communication.

The internal combustion engine and its application.

Modern methods of structure building with both metal and cement.

Modern metallurgy.

Processes of food preservation, including canning and refrigeration.

Aircraft and aerial navigation.

The development of machinery to lessen the burden of labor and to increase its output.

radiation phenomena." It began with the conception of atoms as the invisible building block of the universe—an idea resurrected from ancient Greece and presented to the world in revised form at the start of the nineteenth century by a British chemist, John Dalton. It grew to majestic proportions with the discovery of radium, in 1898, by the French physicists, Pierre Curie and Madame Curie.

This and subsequent explorations into the wonderful world of atoms stand among the great triumphs of all time. For they have revealed all matter in the universe as a changing, evolving thing, pulsating with swift motion, and charged with enormous energies which man may some day learn to harness.

Many years before electricity was given a meaning and a place in the foundation of the universe inventors were designing the third wonder—"the progress of electricity as to light, power and communication." Electricity was bridled to the service of man.

When Michael Faraday, early in the nineteenth century, induced an electric current in a coil of wire by moving it across the field of a magnet, he comprehended little of the mighty forces with which he dealt. But out of his experiment came the first dynamo and the first magneto, forerunners of all our machines for generating electricity.

Increasing knowledge brought a succession of marvels—the telegraph of Morse, the telephone of Bell, the incandescent lamp of Edison, heating appliances and electric furnaces, the wireless of Marconi, radio, television—any one of which overshadows in magnificence any of the seven wonders of old.

The fourth wonder—"the internal combustion engine and its application"—has wrought changes almost as astonishing. Only forty-three years have passed since Gottlieb Daimler constructed his first successful gas engine and used it to run a bicycle. Since then the power derived from combustion of the mixture of gas and air has eclipsed the agencies of transportation which have endured since the beginning of history.

Nearly 28,000,000 motor cars are now rolling over the world's highways, about 23,000,000 of them in the United States. America has one pleasure car for every six persons. Economies of quantity production have placed the motorized vehicle within reach of almost every man and built a record-breaking industry representing billions of dollars. Though the basic principle of the gas engine has not been altered since Daimler's day, swift improvements in machinery and materials have brought power and speed under perfect control. No other single invention has worked such sweeping changes in human life and habits.

The fifth wonder on the list Dr. Stratton calls "modern methods of structure building with both metal and cement." This may not sound particularly magnificent, until you consider that it has created virtually all the mighty engineering achievements of modern times—our great skyscrapers, bridges, ships, dams, subways, canals, tunnels, engines and machines.

With steel and concrete, modern builders, in a few months, erect structures which would have required years of labor for the builders of the Great Pyramid.

The use of iron to build machines and implements goes back half a dozen centuries, and iron was first employed in an important way in structural material more than a century ago. The Age of Steel, however, might never have been realized but for the experiments of a British metallurgist and inventor, Sir Henry Bessemer, in the search for improved metal for artillery. The result of his experiments, in 1856, was the Bessemer converter embodying an economical process of

Development of Chemistry Is Underlying Reason For Our Progress

decarbonizing cast iron. This, with the subsequent invention of the regenerative open hearth furnace and the development of the rolled I-beam, gave modern builders a cheap material twenty times as strong as wood, ten times as strong as stone, and five times as strong as cast iron. The famed hanging gardens of Babylon rising 400 feet may have been wonderful, indeed, yet they could not have compared with the marvelous towers of steel that now spring up on every hand.

The wonder of metal construction goes hand in hand with Dr. Stratton's sixth wonder, that of "modern metallurgy." This fascinating science, by combinations of metals and by delicate processes of heat treatment, has created alloys possessing special qualities, such as strength, lightness, or toughness, to meet special needs. In steel alloys these properties are imparted by introducing quantities of such metals as tungsten, nickel, manganese, chromium and so on. The list of marvelous materials, already long, is continually growing.

Among outstanding new metals is duralumin, the aluminum alloy of extremely light weight and strength, widely used in construction of airplanes and dirigibles. Metallurgy also has performed many works of magic in transforming the properties of metals. Such was the transformation of brittle tungsten into ductile wire suitable for filaments in electric lamps—a laboratory achievement which made possible the tungsten lamp.

Not every person, perhaps, would think of including among today's wonders the seventh on Dr. Stratton's list—"processes of food preservation, including canning and refrigeration."

Yet, next to food itself, the preservation of foodstuffs is the vital factor in modern existence. It is the support on which modern industry rests; for it is the only thing that enables people to congregate in industrial centers, distant from the sources of food supply.

The inventor to whom we owe the discovery of food sterilization was a Frenchman named Nicholas Appert, who, in 1795, learned how to preserve fruit by inclosing it, after heating, in a glass bottle which he then cooked and immersed in boiling water, and let cool. Much the same principle is employed today in great canning plants.

No tabulation of wonders, of course, could omit, aircraft and aerial navigation." It is the hope of centuries fulfilled. Men always have dreamed of flight, but no age until the present has had a Lilienthal, Langley or Wright brothers to dare and conquer. In the twenty-four years since the Wrights showed the way in their first successful flights under motor power, the flying machine has girdled the globe, explored the Pole, spanned continents and oceans. With a speed of 300 miles an hour it has eclipsed all records for mechanical force, climbed to a ceiling of nearly eight miles, and flown for fifty hours without stop.

When Dr. Stratton named as his ninth and last wonder, "the development of machinery to lessen the burden of labor and to increase its output," he made it plain that his selections were listed not at all in the order of importance. In the stretch of more than a century between the cotton gin of Eli Whitney and the latest automatic mathematical machine, a host of inventions have arisen to relieve the drudgery of both hand and head labor and enrich the world. The harvesting machinery of Cyrus McCormick, which revolutionized agriculture, the sewing machine of Elias Howe, typewriters, calculating machines, automatic lathes and milling machines, dictaphones, printing presses, linotype machines, automatic telephone exchanges—one might go on swelling the list almost indefinitely.

If a tenth wonder were to be added to the list, it might well be this: Whereas the seven wonders of the ancients crumbled and decayed with time, the modern wonders of applied science are never ending. They grow and endure.

SENIOR RING DESIGN IS LIKE '27 PATTERN

As the result of a thorough investigation of a good many types and makes of class rings, the Executive Committee of the Senior Class has picked a ring which in all essentials will be very much similar to last year's ring. No announcement has been made about the company which will receive the contract to manufacture the rings.

More definite information will be printed in the next issue of THE TECH about its exact appearance, price, and when it will be available for purchase.

NAVIGATION WILL BE SUBJECT OF LECTURE

Professor Hosmer To Deliver Arts Society Address

(Continued from Page 1)
high schools. The lecture for the general public will be given on Sunday afternoon at 4 o'clock. All lectures will be given in Room 10-250. The capacity audience, which attended the previous of this series of lectures, make it advisable for those anxious to attend to come early and make sure of a seat. Admission is by ticket only, though any remaining seats will be open to others after the ticket holders are accommodated.

These lectures are given at the Institute in the second week of each month under the auspices of the Society of Arts, with a view to acquainting the public with recent advances in modern science and engineering. Professors at the Institute have consented to deliver each of the four lectures in this year's series.

AUTOMOBILE NUMBER PUT OUT BY T. E. N.

(Continued from Page 1)
research which has been carried on for the last four years in the laboratories of the Bell Telephone Company in an effort to perfect the transmission of sight by wire.

"Televox," by R. J. Wensley of the Westinghouse Electric Company. "Dust Explosions" by the Chief Chemist of the Department of Agriculture, a paper on methods for combating contagious diseases and one on the "Transmission of Heat by Gas Radiation," are also to be found in the engineering monthly's January number.

FRESHMAN CREW

All freshmen who wish to take crew in place of P. T. 2 must sign up in Mr. McCarthy's office before 12 o'clock Tuesday, January 17th.

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